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Massachusetts Department of Energy Resources
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Subject: *Comments on Manomet Study on Forest Sustainability and Carbon Policy*

I am John Irving the plant manager of the McNeil Generating Station. I have held this position for 25 years. McNeil is the largest biomass fueled plant in New England and the oldest. There are several areas in the Manomet Study that are of great concern to me, particularly the fuel supply, carbon balance and study team objectivity.

Fuel Supply

The study indicates that a large portion of the fuel supply for future wood fired plants will be from whole tree harvesting almost entirely within the State of Massachusetts. I'm not aware of any existing plant where trees are being cut solely to provide fuel for a generating station. At McNeil virtually all of our wood fuel is a waste product, which would otherwise be clogging up landfills or forests. One of the many benefits of the biomass plants in New England is they serve as the "Waste Management Inc." for the wood products industry by creating a market for the low grade residues which would otherwise decompose into CO_2 and methane. Any biomass plant operator would agree that you can't afford to buy wood that's cut specifically for biomass plant fuel. McNeil Station employs four professional foresters to ensure that wood is supplied on a sustainable basis taking particular care to protect wildlife habitat and wetlands. More details on wood supply problems with the report are being submitted by McNeil forester Bill Kropelin under separate cover.

Carbon Balance

The study seems to totally miss the point on the carbon balance as it relates to trees. Trees don't permanently sequester carbon, they borrow it for relatively short periods of time geologically speaking. When a tree is growing it converts CO_2 in the atmosphere into carbon in the fiber. When the tree dies it decomposes primarily into CO_2 . If the wood is used for building houses or furniture for example there is a short delay in returning the carbon to the atmosphere, but again it is insignificant from a geological time perspective. If the wood goes to a landfill the carbon largely decomposes into methane (CH_4). Methane has about 20 times the greenhouse gas impact as CO_2 The Manomet Study recognizes that trees absorb carbon but seems to ignore the second part of the process that the carbon returns to the atmosphere anyway. In the report Manomet compared the life cycle CO_2 emissions of biomass generation to that of coal and natural gas.

Their conclusion was:

Biomass	1.49	tonnes/mwh
Coal	1.0	tonnes/mwh
Natural Gas	0.5	tonnes/mwh

Manomet took their numbers for the coal and natural gas plants from a report done by the National Renewable Energy Laboratory (NREL) authored by Margaret Mann and Pam Spath. Manomet decided to ignore the data in the NREL report where Mann and Spath determined that the life cycle CO_2 emissions of a direct fired biomass power plant was -0.4 tonnes/mwh. (Yes, negative 0.4 tons). This conclusion completely overturns the point of the Manomet Study and was done by a very credible organization. A summary of NREL's work is submitted with these comments.

At about the same time the Manomet Study was released, The European Union Commission issued a study entitled "Biomass for heat and power" which was completed jointly by the European Climate Foundation, Sodra, Sveaskog and Vattenfall. These organizations collectively represent many of the relevant stakeholders in the debate about biomass: forest owners, pulp and paper companies, and utilities. Vattenfall is Europe's fifth largest generator of electricity and Europe's largest producer of heat. Sveaskog is Sweden's largest forest owner. The European Climate Foundation's mission is "European Climate Foundation aims to promote climate and energy policies that greatly reduce Europe's greenhouse gas emissions and help Europe play an even stronger international leadership role in mitigating climate change". This study concluded that the most common types of biomass for heat and power applications reduce emissions by 55 to 98 percent compared to today's fossil fuel mix in European power generation even in situations where the biomass is transported internationally. The UK Environmental Agency also published a report on the sustainability of biomass in 2009 with similar conclusions.

Study Team Objectivity

In November 2009, a kickoff meeting was held by the members of the Manomet Study Group to make the public aware of the study and get input. One of the speakers for the Manomet study group introduced herself as a Doctor of Change. This seemed premature considering they hadn't yet started the study. Another study team member, Chris Recchia, was introduced as being responsible for determining the type of technology that should be used for utilizing biomass fuel in Massachusetts, basically thermal heat or electricity generation. Chris is the Executive Director for the Biomass Energy Resource Center (BERC) in Montpelier, Vermont. BERC's major role is to promote and facilitate the use of biomass for thermal energy, primarily biomass heating systems for schools. As a founding board member of BERC I supported this priority for BERC. At that time there was no biomass generating station proposed in New England; there was a plethora of people with experience in that area available, and BERC had no expertise in biomass generation. School biomass systems have an efficiency comparable to home woodstoves (70%), but have emissions per ton of wood consumed that are about ten times a biomass fuelled electric generating station. These systems have a seasonal fuel demand and depend on the fuel supply infrastructure created by the biomass electric generating station. BERC employees have made many presentations promoting biomass for thermal energy and recommending **not** using it for electric generation. In 2009, Mr. Recchia addressed the Vermont Natural Resource and Energy Committee at the Vermont State house and testified that he had a bias towards biomass thermal heat instead of for electric generation. It was no surprise that this was one of the recommendations for this report. BERC's self serving actions may have

destroyed the biomass electric generating industry in New England, while seriously jeopardizing the fuel supply to biomass thermal projects.

Respectfully submitted,

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